The Behavior Analyst 1983, 6, 183–186 No. 2 (Fall)

On Terms

When we Speak of Knowing

Philip N. Hineline
Temple University

I. From a behavior-analytic viewpoint, mentalistic or cognitive terms are especially troubling when they specify in noun form phenomena that are properly verb-like. Thus knowledge, sensation, memory, and the like are labels in a language of things; they imply "mental way-stations" that seem gratuitous within our environment-based account. Their continual suggestion of "stuff" that must be translated into action leads to problems that need not be—problems of explaining how mental events produce physical events or problems about the nature of the mental stuff. But what about related terms left in verb form, such as knowing, thinking, rehearsing, or talking privately with oneself as audience? These are less inimical to our approach, for they need not imply dualism and indeed are readily construed as various ways of behaving. For example, the selective recall of words with acoustic similarity is easily stated as "differential remembering"—behavior that, while saliently a function of events no longer present, need not be predicated upon the characteristics of internal hardware. The gerund form, "knowing" also implies aspects of behavior that we need not take as implying a separate domain of mental events. Indeed, ours is unique among behaviorisms in dealing with private, internal events without giving them special, causal status. (Skinner, 1945; Schnaitter, 1978)

But when we speak of knowing we must proceed carefully. One problem arises from the commonsense distinction between knowing and doing; we may assert that knowing is an aspect of behaving, but our listeners or readers will tend to reconstrue "knowing" as a non-behavioral event, the possessing of knowledge. In short, while "knowing" *need* not imply mentalism it typically does so within the community at large. Still, this is not the most compelling basis for rejecting the language of knowing, for when we reject such language as implying a separate mental world, we are mainly asserting our axiomatic preference for environmental interpretations of behavior. People who do not share this axiomatic preference are not easily convinced by such assertions.

A stronger basis for challenging the language of knowing is the failure of its ordinary locutions to support distinctions that should be kept clear whatever one's theoretical viewpoint and that are clear and meaningful within behavioral analysis. Two of the anchor points of a precise behavior-analytic interpretation in this domain can be stated in ordinary but careful language. One such anchor point is the locution of "knowing that." In ordinary language "knowing that" implies a verbal repertory: if asked, the knower could describe whatever "that" refers to. Similarly, in behavior-analytic terms, "knowing that" specifically implies a verbal repertory of tacts. When one "knows that such and such is the case," one can describe the relevant relationships, and this describing can function as discriminandum for a listener's behavior. It can also function as discriminandum for oneself as listener—that is, setting the occasion for another of one's

Preparation of this manuscript was facilitated by a study leave supported by Temple University. Requests for reprints should be sent to Philip N. Hineline, Department of Psychology, Temple University, Philadelphia, PA 19122.

repertories. The resulting behavior is part of a general class, "rule-governed behavior"—behavior under discriminative control of events that are specified in formal terms. (Skinner, 1969, ch. 6) To behave in ways merely predictable by rules is not necessarily to engage in the behavior of following such rules. A native speaker of German is not following the rules of a grammar book as is the language student who is following those rules.

The origins of "knowing that" are also the origins of "being aware." Skinner (1969, 1974) has discussed them in detail in terms of how we come to "see that we see," which is a variant of "knowing that we see." Supporting this interpretation is the fact that in ordinary language, "being aware" is tantamount to being able to describe. To this native speaker at least, "acting unconsciously" implies the absence of such a repertory of self-description—no more, no less. It does not require the positing of an absent *thing,* consciousness, but rather the absence of an adverb, "consciously" that denotes the available descriptive repertory.

The second anchor point is that of "knowing how," whereby we specify a repertory that is what the organism in question can do. Except in the case of knowing how to speak, write, or the like, "knowing how" does not imply a verbal repertory. In further elaborations of "knowing how" we identify not only the actions comprising the repertory, but also circumstances in which the repertory occurs.[1]

When in ordinary language we speak in the indefinite—of "knowing when," of "knowing which," or of "knowing whether"—we need not imply a verbal repertory. Indeed, a verbal repertory should *not* be implied, for when we say "he knows when to go," "she knows which road to take," or "they know whether it will rain," we need specify no more than sensitivity of behavior to a particular temporal, spatial or probabilistic dimension of the environment. In my view, these usages are the only ones that permit consistency in this non-linguistic domain. To assume a role of language when it need not be involved is to muddle one's interpretations, for the following of verbal rules is a real, functional class of behavior to be invoked when it is indeed occurring. "Knowing that" can be elaborated to handle cases of "when, whether, or which" if verbal repertories are involved in the behavior. For example, "He knows to go after people have left," implies discrimination but not verbal repertory. "He knows that he should go after people have left" does imply a verbal repertory. It is essential to maintain this distinction, for such verbal repertories can interact with one's other behavior.

Concatenations of these "knowing" locutions also identify specific behavior/environment relationships. For example, consider "He knows that they don't know that she knows how to drive a snowmobile." Such relationships, carefully stated, are consistent with precise behavioral analysis: 1) Her repertories include effective snowmobile driving, irrespective of whether her verbal tacts are consistent with that fact (e.g., she may be an accomplished motorcyclist, and this repertory may transfer directly to snowmobiling), 2) Their tacts are not under reliable functional control of her repertories relevant to snowmobiling, 3) His tacts are under reliable functional control of both 1) and 2). "Knowing when, knowing whether, and knowing which" can also be concatenated: "He knows whether they know when . . ." but again, verbal repertories need not be involved. If such are

[1] Viewing these identifications as tacts under complex discriminative control, it appears that in speaking of knowing how, we can remain quite consistent with behavior-analytic distinctions. The only inconsistency is a lingering suggestion of knowing as different in kind from doing. However this is no more self-contradictory than "repertory" as suggesting "possession," and thus things to be possessed. To be maximally consistent in our theory, a repertory is part of one's being—what or who one *is*—rather than part of what one *has.* Yet the possessive case is a recommended usage, casting one as "host" of one's behavior (Baer, 1976). The embedding of behavior theory within conventional language inevitably saddles us with residual inconsistencies, for that language is fundamentally mismatched with phenomena of behavior. (Hineline, 1980)

indeed involved, the "knows that," locution should be invoked.

Unfortunately, when one moves from indefinite to definite cases of "whether, when, and which," these crucial verbal/non-verbal distinctions are not well-handled within ordinary language. Even though both behavioral and cognitive research have shown otherwise, ordinary language tends to imply that complex behavioral relations necessarily involve rational, verbal thought. The resulting problems develop as follows: the indefinite case of "knows whether," may imply only sensitivity to an event, without invoking a verbal repertory. "He knows whether B follows A" could simply tact the organism's sensitivity to a correlation between A and B. However, when we move from the conditional, "whether," to an actual case of behavioral sensitivity to B correlated with A, the character of the description changes: "He knows *that* B follows A." The word, "that," is not logically necessary to the sentence, but as an observer/participant in both the ordinary-language community and in the community of psychologists, I find the word "that" is nearly always added. The resulting locution implies a verbal repertory of describing the relation between A and B, while the evidence is mere sensitivity to the relation.

Given that vernacular usage is not sufficiently consistent to maintain the above distinctions, and that as both speakers and listeners of vernacular English, we tend to revert from precise science to approximate common sense when dealing with these, most locutions of "knowing" are best left out of a behavioral analysis. In short, the strong argument for rejecting such terms is not an argument against mentalism. Rather, it is based upon their imprecision in vernacular use, their tendency to obscure the properties of rule-governed and verbal behavior, and thus their tendency to trivialize the meaning of "to know."

II. At the same time, we cannot be complacent in our rejection of the locutions of knowing. Even in experiments on animal behavior, behavior-analytic interpretation is confronted with relationships that are not easily described with conceptual consistency. The relationships of concern are stimulus-stimulus relationships of the sort traditionally introduced under the labels of "sensory preconditioning" and "latent learning." In these phenomena, stimulus-stimulus correlations are shown to affect subsequent behavior without apparent involvement of unconditioned stimuli (Pavlovian) or reinforcers (operant). To deal with these phenomena from a behavior-analytic viewpoint, hypothetical reinforcers (or unconditioned stimuli) have been invoked. Such hypothesizing is largely gratuitous; fortunately the gratuitousness has not been very damaging since the phenomena themselves have proved to be labile and transitory, and our research enterprise has not been appreciably weakened by ignoring them.

The stimulus-stimulus relationships of Pavlovian conditioning and its elaborations (blocking, overshadowing, and the like) have also largely been neglected by behavior-analytic theorists. Although these should produce no difficulty for behavior-analytic interpretation because the locutions relating to elicitation are applicable, the language most frequently applied to these phenomena began as the language of "association." Association *can* be understood as applying to relationships that are purely environmental; however, the term tends to connote connections made within the organism. Furthermore, with the elaboration of demonstrated stimulus-stimulus relationships—such as demonstrated sensitivity to the non-correlation of previously correlated events—the language of association has been elaborated to a language of knowledge, including the "knows that" locution. As I have argued above, to invoke the locution, "he knows that A is not reliably followed by B," when the sole evidence for the assertion is an observed sensitivity to the previous non-correlation between occurrences of A and B, is to trivialize the vernacular meaning of "knowing" and the behavioral meaning of "knowing that." The stimulus-stimulus relations *could be* sorted out in terms of "knowing when," "knowing

whether," and "knowing which," as I have described above. If this were consistently done, then the "knows-that" locution could be restricted to situations where the relevant verbal repertories are legitimately invoked. Unfortunately, psychologists who have interpreted behavior in terms of knowledge have not been consistent in retaining these ordinary-language distinctions, even when dealing with the rigorously researched phenomena of Pavlovian conditioning.

Finally, we have not yet dealt in adequate detail with many of the stimulus-stimulus relations that potently affect human behavior. Skinner has addressed some aspects of literary behavior (e.g. Skinner, 1942, 1972), but these discussions and his treatise on verbal behavior (1957) leave us short of accounting for much of what goes on as one reads an essay or listens to a lecture. In part, the lack has arisen through a de-emphasis on listener's behavior, a deficit for which partial remedies have begun—as in Zettle and Hayes's (1982) proposing functional categories of listeners' behavior, in Sidman and his colleagues' (1982), analyses of equivalence classes among stimuli, in Lloyd's (1980) and Catania, Matthews and Shimoff's (1982) studies of relations between saying and doing, and in Parrott's (1983) comparisons of Skinnerian and Cantorian interpretations of "to know." Progress in these domains may require some changes of emphasis, perhaps with a shift from our almost exclusive focus upon functional characteristics to an inclusion of more structural characteristics of behavior in our account. The two have always been complementary (Catania, 1973). Addressing structural characteristics need not require reversion to a language of "things," nor adoption of misleading conventions of "knowledge." They should, however, elucidate details of the relations and activities that are at issue when we speak or write of one's seeing or hearing understandingly or knowingly.

REFERENCES

Baer, D. M. The organism as host. *Human Development,* 1976, *19,* 87–98.

Catania, A. C. The psychologies of structure, function, and development. *American Psychologist,* 1973, *28,* 434–443.

Catania, A. C., Mathews, B. A., & Shimoff, E. Instructed versus shaped human verbal behavior: Interactions with nonverbal responding. *Journal of the Experimental Analysis of Behavior,* 1982, *38,* 233–248.

Hineline, P. N. The language of behavior analysis: its community, its functions, and its limitations. *Behaviorism,* 1980, *8,* 67–85.

Lloyd, K. E. Do as I say; not as I do. *New Zealand Psychologist,* 1980, *9,* 1–8.

Parrott, L. J. Perspectives on knowing and knowledge. *The Psychological Record,* 1983, *33,* 171–184.

Schnaitter, R. Private causes. *Behaviorism,* 1978, *6,* 1–12.

Sidman, M., Rauzin, R., Lazar, R., Cunningham, S., Tailby, W., & Carrigan, P. A search for symmetry in the conditional discrimination of Rhesus monkeys, baboons, and children. *Journal of the Experimental Analysis of Behavior,* 1982, *37,* 23–44.

Skinner, B. F. A quantitative estimate of certain types of sound-patterning in poetry. *The American Journal of Psychology,* 1942, *30,* 64–79.

Skinner, B. F. The operational analysis of psychological terms. *Psychological Review,* 1945, *52,* 270–277.

Skinner, B. F. *Verbal Behavior.* New York: Appleton-Century-Crofts, 1957.

Skinner, B. F. *Contingencies of Reinforcement: A Theoretical Analysis.* New York: Appleton-Century-Crofts, 1969.

Skinner, B. F. A lecture on "having" a poem. In Skinner, B. F. *Cumulative Record* (3rd Ed). New York: Appleton-Century-Crofts, 1972. Pp. 345–355.

Skinner, B. F. *About Behaviorism.* New York: Knopf, 1974.

Zettle, R. D., & Hayes, S. C. Rule-governed behavior: a potential theoretical framework for cognitive behavioral therapy. In P. C. Kendall (Ed.) *Advances in cognitive-behavioral research and therapy.* (Vol. 1). New York: Academic Press, 1982, Pp. 73–118.